as 1616 and 1617." But all the standard authorities on this subject agree that the point or comma was first used by the German Pitiscus in the 1612 edition of his trigonometry.[1] Napier has apparently no claim whatever to priority in the field, nor even to independent discovery for it is well established that he was familiar with the works of Pitiscus. The error is particularly unfortunate at the present time.

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PROBLEMS FOR SOLUTION.

SEND ALL COMMUNICATIONS ABOUT PROBLEMS TO B. F. FINKEL, Springfield, Mo.

ALGEBRA.

473. Proposed by J. J. GINSBURG, Student, Cooper Union, New York.

Factor the expression $x^{30} + x^{25} + x^{20} + x^{15} + x^{10} + x^5 + 1$.

474. Proposed by A. A. BENNETT, University of Texas.

Show that the value of the infinite continued fraction, all of whose coefficients are unity, $1 + \cfrac{1}{1 + \cfrac{1}{1 + \cdots}}$, is $\frac{1}{2}(1 + \sqrt{5})$. Also find an explicit algebraic formula for the nth convergent.

GEOMETRY.

505. Proposed by O. S. ADAMS, Coast and Geodetic Survey, Washington, D. C.

Construct a triangle, having given the sum of two sides, the angle included by these sides, and the altitude from the given angle upon the third side.

506. Proposed by S. A. COREY, Albia, Iowa.

Given a pentagon, plane or gauche, whose sides a, b, c, d, e are represented by the vectors x, y, z, v and $(x + y + z + v)$, respectively; and a second pentagon whose sides a_1, b_1, c_1, d_1, e_1 are represented by the vectors r, s, t, u and $(r + s + t + u)$, respectively, where

$$r = c_1x - c_5c_2y - c_6c_3z + c_5c_6c_4v, \quad s = c_2x + c_1y - c_6c_4z - c_6c_3v, \quad t = c_1z + c_3x + c_5c_2v + c_5c_4y,$$

$$u = c_1v - c_4x - c_2z + c_3y, \qquad c_1, c_2, c_3, c_4, c_5 \text{ and } c_6 \text{ being ordinary scalars.}$$

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[1] As the introduction of the decimal point in 1616 and 1617 by Napier is claimed also in the recent Napier Tercentenary Volume it seemed to me worth while to verify the assertions which have been made in standard works on the subject, concerning the introduction of the decimal point by Pitiscus in 1612. I am enabled to do so through the courtesy of Professor David Eugene Smith and one of his students. In the *Canon Triangulorum emendatissimus et ad usum accommodatissimus, pertinens ad Trigonometriam Bartholomaei Pitisci, Grunbergensis Silesii* (Francofurti, Typis Nicolai Hoffmani, sumptibus Ionæ Rosæ, Anno M.DC.XII) Pitiscus uses for the sine of ten seconds the value 4.85 with the radius 100000; the value to 8 places is .00004848. Even more explicitly in the *Trigonometry* itself, also of 1612, Pitiscus uses a vertical bar and says: "Deinde pro latere AC nuper invento 13 | 00024 assumo 13 fractione scilicet 24/100000 neglecto quare ferme nullius fit momenti." It is thus evident that the 4.85 above which represents the decimal value was used with full consciousness of its significance by Pitiscus. I note also the use of the bar in the work of 1612, Bartholomaei Pitisi *Problematum Variorum* (Frankfurt). A further point worth noting is that Napier cites the earlier editions of Pitiscus, making it almost certain that between 1612 and 1616 he had copies of these works of 1612 in his hands. These works are in the New York Public Library.